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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/826,006	04/15/2004	James R. Braig	OPTIS.084A	9205

20995 7590 03/22/2007

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EXAMINER	
RAMILLANO, LORE JANET	
ART UNIT	**PAPER NUMBER**
1743	

SHORTENED STATUTORY PERIOD OF RESPONSE	NOTIFICATION DATE	DELIVERY MODE
3 MONTHS	03/22/2007	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Notice of this Office communication was sent electronically on the above-indicated "Notification Date" and has a shortened statutory period for reply of 3 MONTHS from 03/22/2007.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/826,006	BRAIG ET AL.	
	Examiner	Art Unit	
	Lore Ramillano	1743	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *08 February 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-36* is/are pending in the application.

4a) Of the above claim(s) *1-15 and 21-36* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *16-20* is/are rejected.

7)☒ Claim(s) *16* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *15 April 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *10/29/04*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Applicant's election with traverse of Group II, claims 16-20, in the reply filed on 2/8/07 is acknowledged. The traversal is on the ground(s) that an examination of all the claims would not present "a serious burden" on the Examiner. This is not found persuasive because, as examiner stated in the prior Office action (filed 1/11/07), the inventions are distinct, each from the other because of the following reasons:

Inventions of Groups I and II are unrelated. Inventions are unrelated if it can be shown that they are not disclosed as capable of use together and they have different designs, modes of operation, and effects (MPEP § 802.01 and § 806.06). In the instant case, the different inventions are not disclosed as capable of use together and have different designs, modes of operation, and effects because both inventions do not have any overlapping structural limitations and the invention of Group I detects analytes, whereas, the invention of Group II measures the concentration of an analyte.

Inventions of Groups III and I are related as process and apparatus for its practice. The inventions are distinct if it can be shown that either: (1) the process as claimed can be practiced by another and materially different apparatus or by hand, or (2) the apparatus as claimed can be used to practice another and materially different process. (MPEP § 806.05(e)). In this case, the apparatus as claimed can be used to practice another and materially different process, such as a method for analyzing glucose in a blood sample.

Inventions of Groups IV and I are related as process and apparatus for its practice. The inventions are distinct if it can be shown that either: (1) the process as

claimed can be practiced by another and materially different apparatus or by hand, or (2) the apparatus as claimed can be used to practice another and materially different process. (MPEP § 806.05(e)). In this case, the apparatus as claimed can be used to practice another and materially different process, such as a method for analyzing glucose in a blood sample.

Inventions of Groups III and II are related as process and apparatus for its practice. The inventions are distinct if it can be shown that either: (1) the process as claimed can be practiced by another and materially different apparatus or by hand, or (2) the apparatus as claimed can be used to practice another and materially different process. (MPEP § 806.05(e)). In this case, the apparatus as claimed can be used to practice another and materially different process, such as a method for performing electrochemical analysis with minimal size samples.

Inventions of Groups IV and II are related as process and apparatus for its practice. The inventions are distinct if it can be shown that either: (1) the process as claimed can be practiced by another and materially different apparatus or by hand, or (2) the apparatus as claimed can be used to practice another and materially different process. (MPEP § 806.05(e)). In this case, the apparatus as claimed can be used to practice another and materially different process, such as a method for performing electrochemical analysis with minimal size samples.

Inventions of Groups III and IV are directed to related processes. The related inventions are distinct if the (1) the inventions as claimed are either not capable of use together or can have a materially different design, mode of operation, function, or effect; (2) the inventions do not overlap in scope, i.e., are mutually exclusive; and (3) the

inventions as claimed are not obvious variants. See MPEP § 806.05(j). In the instant case, the inventions as claimed can have a materially different design, mode of operation, function, or effect because the invention of Group III measures the concentration of analytes in a sample and does not require an optical source to conduct such measurement, whereas, the invention of Group IV determines a medical condition and requires a specific type of detection system, which comprises an optical source. Furthermore, the inventions as claimed do not encompass overlapping subject matter and there is nothing of record to show them to be obvious variants.

Thus, because these inventions are independent or distinct for the reasons given above and there would be a serious burden on the examiner if restriction is not required because the inventions have acquired a separate status in the art due to their recognized divergent subject matter, restriction for examination purposes as indicated is proper.

The requirement is still deemed proper and is therefore made FINAL.

Claim Objections

2. Claim 1 is objected to because of the following informality: examiner suggests including "and" to precede the last limitation, "a second array . . ." to clearly show that the claim does not comprise of additional language after the "second array" limitation. Appropriate correction is required.

Claim Rejections - 35 USC § 102

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application

by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

3. **Claims 16-18** are rejected under 35 U.S.C. 102(b) as being anticipated by Jeffers (US 5413763) and in light of Day et al. ("Day," US 5448070).

Jeffers discloses an optical source configured to emit electromagnetic radiation in a range of about 4.275 to about 10.060 μm; a detector positioned with respect to the source, so that the source and the detector define an optical path; a sample element configured to support a material sample in the optical path; a first array of filters disposed in the optical path between the sample element and the source, the first array of filters being configured to allow electromagnetic radiation of a first set of previously determined values to impinge on the sample element, the first set of previously determined values associated with a first analyte; and a second array of filters disposed in the optical path between the sample element and the source, the second array of filters being configured to allow electromagnetic radiation of a second set of previously determined values to impinge on the sample element, the second set of previously determined values associated with a second analyte. (i.e. column 7, lines 18-45).

The second set of previously determined values includes wavelengths selected from the group comprising: about 7.8 μm, about 8.3 μm, about 10.55 μm, about 10.7 μm, and a wavelength of about 10.55 ± .2 μm. (i.e. column 7, lines 18-45).

Jeffers's light source (i.e. infrared source) inherently discloses the wavelengths as recited in claims 16-18 because Day discloses that the mid-infrared spectral band, pertains to wavelengths ranging from 2.5 micrometers to approximately 14 micrometers. (i.e. column 1, lines 25-36).

4. **Claims 16-18** are rejected under 35 U.S.C. 102(b) as being anticipated by Frischauf (US 5371020) and in light of Turnbull (US 4806762).

Frischauf discloses an optical source configured to emit electromagnetic radiation in a range of about 4.275 to about 10.060 μm; a detector positioned with respect to the source, so that the source and the detector define an optical path; a sample element configured to support a material sample in the optical path; a first array of filters disposed in the optical path between the sample element and the source, the first array of filters being configured to allow electromagnetic radiation of a first set of previously determined values to impinge on the sample element, the first set of previously determined values associated with a first analyte; and a second array of filters disposed in the optical path between the sample element and the source, the second array of filters being configured to allow electromagnetic radiation of a second set of previously determined values to impinge on the sample element, the second set of previously determined values associated with a second analyte. (i.e. column 8, lines 22-62).

The second set of previously determined values includes wavelengths selected from the group comprising: about 7.8 μm, about 8.3 μm, about 10.55 μm, about 10.7 μm, and a wavelength of about 10.55 ± .2 μm. (i.e. column 8, lines 22-62).

Frischauf's light source (i.e. thermal radiation source) inherently discloses the wavelengths as recited in claims 16-18 because Turnbull discloses a detector for detecting thermal radiation, which pertains to wavelengths ranging from 5 to 15 micrometers. (i.e. abstract).

5. **Claim 16** is rejected under 35 U.S.C. 102(b) as being anticipated by Shepherd et al. ("Shepherd," US 6262798) and in light of Panish (US 4184171).

Shepherd discloses an optical source configured to emit electromagnetic radiation in a range of about 4.275 to about 10.060 μm; a detector positioned with respect to the source, so that the source and the detector define an optical path; a sample element configured to support a material sample in the optical path; a first array of filters disposed in the optical path between the sample element and the source, the first array of filters being configured to allow electromagnetic radiation of a first set of previously determined values to impinge on the sample element, the first set of previously determined values associated with a first analyte; and a second array of filters disposed in the optical path between the sample element and the source, the second array of filters being configured to allow electromagnetic radiation of a second set of previously determined values to impinge on the sample element, the second set of previously determined values associated with a second analyte. (i.e. column 8, lines 25-63).

Shepherd inherently discloses the wavelengths as recited in claim 16 because Panish discloses that LEDs emit over about 3.5 - 5.5 μm. (i.e. abstract).

6. **Claims 16-20** are rejected under 35 U.S.C. 102(b) as being anticipated by Nordal (US 4620104) and in light of Day and Chang et al. ("Chang," US 5611004).

Nordal discloses an optical source configured to emit electromagnetic radiation in a range of about 4.275 to about 10.060 μm; a detector positioned with respect to the source, so that the source and the detector define an optical path; a sample element configured to support a material sample in the optical path; a first array of filters (i.e. electronically-tunable optical filter) disposed in the optical path between the sample element and the source, the first array of filters being configured to allow electromagnetic radiation of a first set of previously determined values to impinge on the sample element, the first set of previously determined values associated with a first analyte; and a second array of filters (i.e. electronically-tunable optical filter) disposed in the optical path between the sample element and the source, the second array of filters being configured to allow electromagnetic radiation of a second set of previously determined values to impinge on the sample element, the second set of previously determined values associated with a second analyte. (i.e. column 7, lines 7-47).

The second set of previously determined values includes wavelengths selected from the group comprising: about 7.8 μm, about 8.3 μm, about 10.55 μm, about 10.7 μm, and a wavelength of about 10.55 $\pm$ .2 μm. (i.e. column 7, lines 7-47).

Nordal's light source (i.e. infrared radiation source) inherently discloses the wavelengths as recited in claims 16-18 because Day discloses that the mid-infrared

spectral band, pertains to wavelengths ranging from 2.5 micrometers to approximately 14 micrometers. (i.e. column 1, lines 25-36).

Nordal inherently discloses electronically-tunable optical filter as recited in claims 19-20 because Chang discloses that an acousto-optic filter is an electronically tunable optical bandpass filter. (i.e. column 1, lines 22-23).

7. **Claims 16-20** are rejected under 35 U.S.C. 102(b) as being anticipated by Jeng et al. ("Jeng '182," US 6087182) and in light of Day.

Jeng '182 discloses an optical source configured to emit electromagnetic radiation in a range of about 4.275 to about 10.060 μm; a detector positioned with respect to the source, so that the source and the detector define an optical path; a sample element configured to support a material sample in the optical path; a first array of filters (i.e. electronically-tunable optical filter) disposed in the optical path between the sample element and the source, the first array of filters being configured to allow electromagnetic radiation of a first set of previously determined values to impinge on the sample element, the first set of previously determined values associated with a first analyte; and a second array of filters (i.e. electronically-tunable optical filter) disposed in the optical path between the sample element and the source, the second array of filters being configured to allow electromagnetic radiation of a second set of previously determined values to impinge on the sample element, the second set of previously determined values associated with a second analyte. (i.e. column 12, lines 40-65, column 15, line 35 to column 16, line 11).

The second set of previously determined values includes wavelengths selected from the group comprising: about 7.8 μm, about 8.3 μm, about 10.55 μm, about 10.7 μm, and a wavelength of about 10.55 ± .2 μm. (i.e. column 12, lines 40-65).

Jeng '182's light source (i.e. infrared light source) inherently discloses the wavelengths as recited in claims 16-18 because Day discloses that the mid-infrared spectral band, pertains to wavelengths ranging from 2.5 micrometers to approximately 14 micrometers. (i.e. column 1, lines 25-36).

8. **Claims 16-20** are rejected under 35 U.S.C. 102(e) as being anticipated by Jeng et al. ("Jeng '045," US 6426045) and in light of Day.

Jeng '045 discloses an optical source configured to emit electromagnetic radiation in a range of about 4.275 to about 10.060 μm; a detector positioned with respect to the source, so that the source and the detector define an optical path; a sample element configured to support a material sample in the optical path; a first array of filters (i.e. electronically-tunable optical filter) disposed in the optical path between the sample element and the source, the first array of filters being configured to allow electromagnetic radiation of a first set of previously determined values to impinge on the sample element, the first set of previously determined values associated with a first analyte; and a second array of filters (i.e. electronically-tunable optical filter) disposed in the optical path between the sample element and the source, the second array of filters being configured to allow electromagnetic radiation of a second set of previously determined values to impinge on the sample element, the second set of previously determined values associated with a second analyte. (i.e. column 12, lines 44-57, column 15, lines 37-50).

The second set of previously determined values includes wavelengths selected from the group comprising: about 7.8 μm, about 8.3 μm, about 10.55 μm, about 10.7 μm, and a wavelength of about 10.55 ± .2 μm. (i.e. column 12, lines 44-57).

Jeng '045's light source (i.e. infrared light source) inherently discloses the wavelengths as recited in claims 16-18 because Day discloses that the mid-infrared spectral band, pertains to wavelengths ranging from 2.5 micrometers to approximately 14 micrometers. (i.e. column 1, lines 25-36).

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

10. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

11. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation

under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

12. **Claims 19-20** are rejected under 35 U.S.C. 103(a) as being unpatentable over Jeffers, in light of Day, and further in view of French (US 4676642).

While Jeffers discloses utilizing a filter blade, which comprises two filters, Jeffers does not specifically disclose utilizing an electronically-tunable optical filter.

French discloses an apparatus and method for remote sensing of gases, vapors or aerosols, comprising an electronically tunable optical filter. (i.e. column 6, lines 26-38).

It would have been obvious to a person of ordinary skill in the art to modify Jeffers by specifically utilizing French's electronically tunable optical filter because such filters are widely available and such filters would be beneficial to use because the narrow-band illuminating beam can be spectrally scanned across the absorption spectrum to yield a frequency-modulated signal, which would be proportional to the temporal coherence variations caused by the convolution of the two spectra. Furthermore, as with the simple temporal coherence system, this scheme would be insensitive to amplitude variations as might be caused by for example: changes in transmitted power; variations in atmospheric turbulence and scatter; and changes in concentration of the target gas with position or air movement. (i.e. column 6, lines 26-38).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lore Ramillano whose telephone number is (571) 272-7420. The examiner can normally be reached on Mon. to Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jill Warden can be reached on (571) 272-1267. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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